South Africa's Industrial Energy Efficiency Programmes

Driving Impacts and Outcomes

UNFCCC – Technology Executive Committee
Bonn – 29 March 2017

Alfred Hartzenburg
National Project Manager: IEE Project
Presentation Points

- National Response to Climate Change
- Industrial Energy Efficiency Project
- Key Lessons
South African Energy Use by Sector

- Industrial: 45%
- Residential: 29%
- Exports: 3%
- Commercial: 14%
- Agricultural: 2%
- Energy Losses: 7%

Electricity Tariff Escalation

Eskom average tariff vs. inflation (CPI)

- **2007 - 2015** (excluding additional increase requested)
  - **Eskom tariff**: 300.7%
  - **Inflation**: 45.1%

Additional 2015 - 2017 increases requested

- 2008 electricity crisis
Relevant National Priorities

The Presidency
- Overarching development plan (NDP)
- Climate Change Mitigation (NCCRP)

Department of Energy
- Energy Efficiency Policy & Energy Plan (EE & IRP/IEP)
- Green Economy
- Industrial Policy (IPAP)

Department of Trade & Industry

Department of Environment Affairs

National Treasury
Near Term Priority Flagship Programmes

- Public Works
- Water Conservation and Demand Management
- Renewable Energy
- **Energy Efficiency and Energy Demand Management**
- Transport
- Waste Management
- Carbon Capture and Sequestration
- Adaptation Research
Regulatory Landscape

- Electricity Basic Services Support Tariff Policy - 2003
- Biofuels Industrial Strategy - 2007
- National Climate Change Response Strategy (NCCRS)
- National Energy Act No. 34 of 2008
- Integrated Resource Plan for Electricity 2010-2030 (IRP2)
- Integrated Energy Plan (IEP) (not yet promulgated)
- Income Tax Act Amendments (12i/k/l…) – Tax incentives for EE savings
- SANS 941 – Energy Efficiency of Electrical and Electronic Apparatus
- 2nd National Communication to UNFCCC
- Energy Efficient Leadership Network (EELN)
Primary Development Goal

‘to increase industrial energy efficiency in South Africa and thereby contribute to national efforts to improve energy security while ensuring that GDP growth is not constrained by energy shortages and rising energy prices’
**Engagement Footprint**

### By Sector
- Iron and Steel
- Automotive
- Engineering
- Agro Processing
- Chemicals
- Clothing and Textile
- Cement
- Pulp and Paper
- Commercial Bldngs
- Mining

### Annual Energy Consumption
- **Small:** € 20 000 – € 55 000
- **Medium:** € 55 001 – € 1.7M
- **Large:** > € 1.7M

### By Company Size
- Large
- Medium
- Small
Project Results (2010-2015)

**Training**
- **3200** Engineers and Managers trained (40 Lead Auditors; 156 EnMS/ESO Experts; 53 National Trainers)

**Case Studies**
- **58 completed**

**Energy Saved**
- **2 119 GWh**
- **€ 125M**

**GHG Mitigation**
- **1.9m tCO2e**

**Policy Development**
- **2nd National Energy Efficiency Strategy**
- Energy consumption reporting and 5 yr EnM Plans

**Energy Management Standards**
- Operationalization of ISO 50001
- Published ISO 50002/3/4/6/15
Qualitative Outcomes

- Role of UNIDO, CSIR and NCPC-SA in driving success
- Fostered growth of a viable energy service sector in South Africa
- Pioneered focus change from component to system optimisation
- Promoted dialogue within sectors, industrial supply chains and equipment vendors
- Elevated the importance of behaviour change in driving and sustaining gains
- Created conditions for similar inspired Energy Efficiency programmes in the country and the region
<table>
<thead>
<tr>
<th>Key Lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Active participation and co-ordination of all stakeholders</td>
</tr>
<tr>
<td>2. Remove barriers to Government incentives and establish funding mechanisms for SME’s</td>
</tr>
<tr>
<td>3. Integrated policy development &amp; implementation</td>
</tr>
<tr>
<td>4. Top-down and bottom-up approach drives sustainability</td>
</tr>
<tr>
<td>5. Pervasive communication and awareness raising</td>
</tr>
<tr>
<td>6. Consideration of the Human Factor and socio-economic value-add</td>
</tr>
<tr>
<td>7. Importance of effective sub-metering</td>
</tr>
<tr>
<td>8. Understanding Energy Performance measurement</td>
</tr>
</tbody>
</table>
THANK YOU

EMAIL
ahartzenburg@csir.co.za

WEBSITE
www.ncpc.co.za
www.iee-sa.co.za